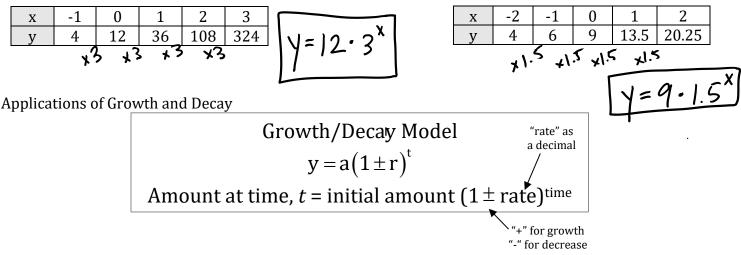
Unit 6 Day 11 Notes on Exponential Functions (Growth and Decay)

Write the equation of the exponential function based on the following tables:



Ex 1 - Compound Interest

You deposit \$500 in an account that pays 8% annual interest compounded yearly.

a) Is this growth or decay?

Growth

b) Write the equation to model this.

$$\gamma = 500(1 + .08)^{t}$$

c) How much will be in the account after 6 years?

d) How much will be in the account after 35 years? 35

$$\gamma = 500 (1.08)^{35}$$

7,392.67

Ex 2 – Cell Phone Value

You purchase a cell phone for \$125. The value of the phone decreases by about 40% each year.

a) Is this growth or decay?

b) Write the equation to model this

$$\gamma = 126(1 - .4)^{t}$$

c) How much would the phone be worth after 6

d) Would the phone ever be worth \$0 according to this model?

vears?

Ex 3 - Computer Use Growth

a= 600,000,000

...

1

One computer industry expert reported that there were about 600 million computers in use worldwide in 2001 and that the number was increasing at an annual rate of 10%, f = 0.000 f = 0.0000 f =

$$\gamma = (00,000,000(1+.1)^{t})^{t}$$

b) Predict the number of computers that would have been in use in 2015. t = 14

$$Y = 600,000,000(1.1)^{14}$$

= 2,278,499,001 computers!

c) Do you think this is accurate?

Ex 4 – Home Purchase

You have inherited land that was purchased for \$30,000 in 1960. The value of the land increased approximately 5% per year.

r=.05

a) Write a function that models the value of the land over time. t = # of years since 1960

b) Predict the value of the land in 2017. ± 57 years

Growth or Decay?

$$y = 3(1.9)^{x} \qquad y = .3(1.9)^{x} \qquad y = 5\left(\frac{3}{5}\right)^{x} \qquad y = 5\left(\frac{5}{3}\right)^{x} \qquad y = 5\left(\frac{5}{3}\right)^{-x} - 5\left(\frac{3}{5}\right)^{x}$$

$$G \qquad G \qquad D \qquad G \qquad D$$